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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,163	04/01/2004	Kent S. Sorenson JR.	T10117.A	1164

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EXAMINER	
BARRY, CHESTER T	
ART UNIT	**PAPER NUMBER**
1724	

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/817,163	SORENSON, KENT S.	
	Examiner	Art Unit	
	Chester T. Barry	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims 1 – 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear whether the phrase "simultaneously injecting an aqueous slurry comprising an optional proppant and a solid-phase or nonaqueous-phase treatment agent" means:

a) "simultaneously injecting a treatment agent and an aqueous slurry, wherein said treatment agent is solid-phase or nonaqueous-phase, and said slurry optionally comprising a proppant" or

b) "simultaneously injecting an aqueous slurry, wherein said slurry comprises an optional proppant, an optional a solid-phase treatment agent, and an optional nonaqueous-phase" or

c) "simultaneously injecting an aqueous slurry, wherein said slurry comprises an optional mixture, said mixture comprising either a proppant and a solid-phase treatment agent or a proppant and a nonaqueous-phase treatment agent."

Correction is required.

Claims 4, 7, 19, 26 - 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "low permeability" in claims 4, 26 - 33 is a relative term which renders the claim indefinite. The term "high viscosity" in claims 7 and 19 is a relative term which renders the claim indefinite. The foregoing terms are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 1 – 9, 11 – 12, 14 – 21, 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 5560737. Schuring describes a method for increasing remediation of a contaminated subsurface formation, the method comprising: (a) fracturing the subsurface formation to result in a network of fractures in the formation; and (b) simultaneously injecting an aqueous slurry into the network of fractures. Per claim 2, the fracturing comprises hydraulic fracturing. Per claim 3, the injecting comprises pneumatic fracturing. Per claim 4, the subsurface formation is a low permeability formation. Per claim 5, because a proppant is optional, the recitation in claim 5 that the proppant be sand does not further limit the scope of claim 1 from which claim 5 depends. Similarly, because a treatment agent is optional, the recitation in claim 6 that the agent comprise chitin does not further limit the scope of claim 1 from which claim 6 depends. Similarly, because a treatment agent is optional, the recitation

in claim 7 that the agent is a high-viscosity agent does not further limit the scope of claim 1 from which claim 7 depends. Similarly, because a treatment agent is optional, the recitation in claims 8 and 9 that the agent comprises an agent for increasing abiotic reduction of contaminants does not further limit the scope of claim 1 from which claims 8 and 9 depend directly or indirectly, respectively. Per claim 11, insofar as a solid-phase or nonaqueous-phase treatment agent is merely optional, the recitation that it comprise an electron donor for increasing anaerobic reductive dechlorination of a chlorinated contaminant does not further limit claim 1 from which claims 11 and 12 depend directly or indirectly, respectively. Per claim 15, the fracturing comprises hydraulic fracturing. Per claim 16, the injecting comprises applying ultrasound, pulse injection, pneumatic fracturing, jet injection, or combinations thereof. Per claims 17 - 21, 23 – 24 the recitations relate to optional agents, so they do not further limit the scope of the claims from which they depend.

Claims 1, 10, 13, 22, 25 – 26 are rejected under 35 U.S.C. 103(a) as being obvious over USP 5560737 in view of 20020020665 to Sorenson. Schuring added electron acceptors to decontaminant a subsurface formation of BTX. Schuring does not appear to add electron donors to degrade chlorinated hydrocarbons. Sorension teaches a similar method by injecting an aqueous slurry of electron donors, e.g., lactate, to decontaminate a formation of chlorinated hydrocarbons, e.g., perchloroethylene (PCE), trichloroethylene (TCE), dichloroethylene (DCE), vinyl chloride (VC), or mixtures thereof.

Claim 15 is rejected under 35 U.S.C. 103(a) as being obvious over USP 5560737 in view of 20040126190. Stegemeier '190 suggests substitution of hydraulic fracturing for pneumatic fracturing ([0098]).

Claims 26 – 33 are rejected under 35 U.S.C. 103(a) as being obvious over USP 5560737 in view of 20020020665 to Sorenson, 6589776 to Harkness, and 20040126190 to Stegemeier. Schuring teaches the basic process of fracturing a subsurface formation to facilitate addition of amendments to decontaminate a contaminated area. Sorenson suggests using a slurry of water and solid electron donors. Harkness suggests use of chitin as a donor. Stegemeier teaches the functional equivalence of various types of fracturing techniques. Accordingly, the prior art suggests the modifications necessary to meet the claimed limitations.

571-272-1152

CHESTER T. BARRY
PRIMARY EXAMINER